

**METHOD AND COMPUTER PROGRAM PRODUCT FOR
PRECISE FEEDBACK DATA GENERATION AND UPDATING FOR
COMPILE-TIME OPTIMIZATIONS**

Abstract

5 A method and computer program product, within an optimizing compiler,
for precise feedback data generation and updating. The method and computer
program uses instrumentation and annotation of frequency values to allow
feedback data to stay current during the multiple optimizations that the program
code undergoes during compilation. Global propagation of known precise
10 feedback values are used to replace approximate and unavailable values, and
global verification of feedback data after optimization to detect discrepancies is
employed. The method and computer program also provides improved
instrumentation to anticipate cloning when code is cloned during ceratin compiler
optimizations and handles inlined procedures. The result is compiled executables
15 with improved SPECint benchmarks.

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